Acta Arachnologica, 62(1): 19–22, September 30, 2013

The first record of *Cosmophasis lami* (Araneae: Salticidae) from Japan

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Abstract — A salticid spider species, *Cosmophasis lami* Berry, Beatty & Prószyński 1997 is newly recorded from Japan. This species is easily distinguishable from the other Japanese salticid spiders by having: orange body; male palp with circular bulb, long spiniform embolus and three tibial apophyses; epigynum with visible paired-semicircular internal canals and elongated copulatory openings.

Key words — Taxonomy, Salticidae, *Cosmophasis lami*, new records, Ryukyu Islands

Cosmophasis Simon 1901 is a salticid spider genus, distributed in India, tropical Himalayas, continental South East Asia, Indonesia, New Guinea, Australia, the western Pacific Archipelagos and Africa (Żabka & Waldock 2012). Most species are known for their spectacular colors and lustrous markings. Up to the present, a total of 55 species are described under this genus (Prószyński 2012).

After examining the materials obtained from Ishigaki Island, Okinawa Pref., Japan, I recognized the occurrence of *Cosmophasis lami* Berry, Beatty & Prószyński 1997, that has been recorded from Singapore (Żabka & Waldock 2012), western Pacific Archipelagos (Berry et al. 1997; Dierkens & Charlat 2011; Żabka & Waldock 2012) and Seychelles (Saaristo 2002, 2010). Here, I present the morphological characteristics of this species using the Japanese specimens. Strictly, the genus *Cosmophasis* had been recorded from Japan by Kishida (1959). He recorded *C. fluvovittatus* (Doleschall 1859) [a synonym of *C. viridifasciata* (Doleschall 1859)] under the name of *Kusumius fluvovittatus* (Doleschall 1859) from Okinawa Pref., with only list of species. Though he might misidentify *C. lami* as *K. fluvovittatus*, I cannot verify that because no basis of the identification, that is, descriptions or specimens exist. Therefore, in the present paper, I deal with *C. lami* as a newly recorded species.

The voucher specimens are deposited in the collection of the Department of Zoology (Tsukuba), the National Museum of Nature and Science, Tokyo.

The following abbreviations are used: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye.

Genus *Cosmophasis* Simon 1901
[Japanese name: Minami-obi-haetorigumo zoku]

Sobara Keyserling 1882, p. 1365. Type species: *S. bitaeniata* Keyserling 1882, from Australia.

Selaophora Keyserling 1882, p. 1374. Type species not designated, originally included species: *S. obscura* Keyserling 1882 and S. rubra Keyserling 1882, both from Australia.

Cosmophasis Simon 1901, p. 553 (Type species: *Plexippus thalassinus* Koch C. L. 1846, from Bintan Is., Indonesia); Barrion & Litsinger 1995, p. 70; Berry et al. 1997, p. 121; Żabka & Waldock 2012, p.116.

Sobara and *Selaophora* may meet the requirements needed to be considered *nomina oblita* (Żabka & Richardson 2012).

Diagnosis. Body usually with some lustrous markings made of shiny iridescent scalelike hairs. Carapace pear-shaped or rectangular, relatively high. Chelicera with two promarginal and one retromarginal teeth. Abdomen slender and elongated. Legs rather slender, in males I or IV longest, in females IV longest. Male palp showing following characters: genital bulb ovoid, circular or elongated, with not-meandering seminal duct; embolus long, spiniform to dagger-like; tibia with large single or bifurcate retrolateral apophysis, sometimes with also ventral apophysis. Epigynum showing following characters: round, ovoid or elongated copulatory opening divided by median guide; posterior edge with a pair of pockets; C-shape, S-shape or multi-coiled internal canals; pear-shaped or coiled spermathecae.

Distribution. Japan (new record; Ishigaki Island), India, subtropical Himalayas, Southeast Asia, Philippines, Australia, New Guinea, the western Pacific Islands and tropical Africa.

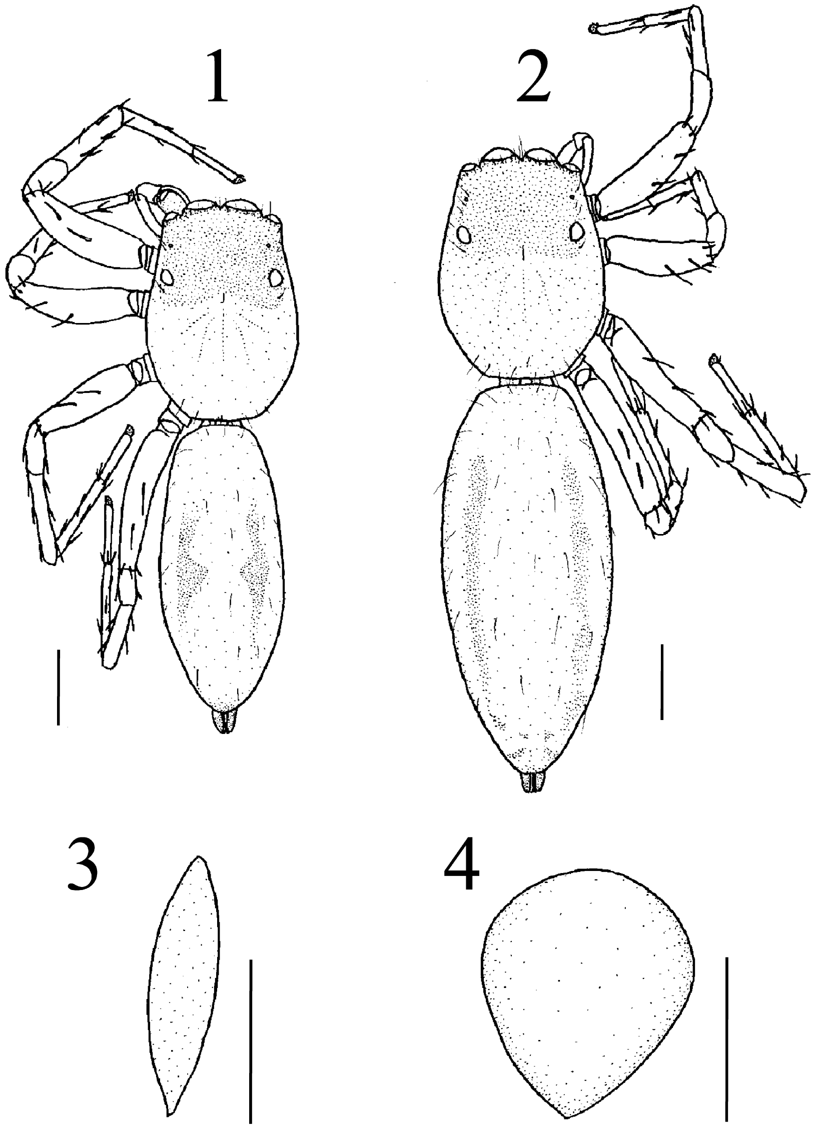
Cosmophasis lami Berry, Beatty & Prószyński 1997
[Japanese name: Homura-haetori]
(Figs. 1–10)

Cosmophasis lami Berry, Beatty & Prószyński 1997, p. 123, f. 58–60 [male holotype from Fiji: Viti Levu, Suva, Lami beach, deposited in Bishop Museum, Hawai; not examined]; Dierkens & Charlat 2011, p. 67, f. 5–8, ♂♀; Żabka & Waldock 2012, p. 123–124, f. 17–19, ♂♀.

Cosmophasis squamata: Saaristo 2002, p. 24, f. 64–69, ♂♀; Saaristo 2010, p. 179, f. 21–26, ♂♀. [nec. Kulczyński 1910, misidentification.]

Specimens examined. 7♂4♀ (1♂: NSMT-Ar 9807, 1♀: NSMT-Ar 9808), Ishigaki airport, Maezato, Ishigaki Is., Okinawa Pref., Japan, 16-III-2012, T. Suguro leg.

Description. Based on 1♂ (NSMT-Ar 9807) and 1♀ (NSMT-Ar 9808) from Ishigaki Is., Japan (Figs. 1–2, 9–10). Measurements (in mm except for proportions of two values; measurements in parenthesis indicate the range for the specimens examined). Body length ♂ 4.64 (4.64–5.39), ♀ 5.57 (5.57–6.53); carapace length ♂ 2.08 (1.95–2.35), ♀ 2.10 (2.10–2.43); width ♂ 1.48 (1.36–1.66), ♀ 1.50 (1.50–1.82); height ♂ 1.04 (0.98–1.16), ♀ 1.02 (1.02–1.16); abdomen length ♂ 2.57 (2.57–3.17), ♀ 3.47 (3.47–4.10); width ♂ 1.24 (1.16–1.66), ♀ 1.80 (1.80–2.32). Eye field: width of eye row I ♂ 1.32 (1.20–1.46), ♀ 1.28 (1.28–1.44); width of eye row III ♂ 1.38 (1.32–1.50), ♀ 1.40 (1.40–1.56); length of eye row ♂ 0.90 (0.86–1.02), ♀ 0.90 (0.90–1.18); width of eye row I/width of eye row III ♂ 0.96 (0.91–0.97), ♀ 0.91 (0.91–0.93); distance between eye row I and II/length of eye row ♂ 0.51 (0.49–0.52), ♀ 0.51 (0.51–0.53); AME diameter ♂ 0.42 (0.40–0.47), ♀ 0.40 (0.40–0.45); ALE/AME ♂ 0.52 (0.52–0.56), ♀ 0.54 (0.52–0.54); ALE/PLE ♂ 1.00 (1.00–1.17), ♀ 1.00 (1.00–1.08); PME/PLE ♂ 0.27 (0.21–0.31), ♀ 0.23 (0.23–0.31). Carapace rather high, height/width ♂ 0.70 (0.68–0.72), ♀ 0.68 (0.64–0.68), with distinct longitudinal fovea. Chelicera with two promarginal and one retromarginal teeth. Length of legs [femur+patella+tibia+metatarsus+tarsus=total]: I ♂ 1.26+0.70+0.86+0.84+0.48=4.14, ♀ 1.12+0.62+0.70+0.62+0.40=3.46; II ♂ 1.20+0.58+0.80+0.80+0.44=3.82, ♀ 1.04+0.56+0.62+0.60+0.40=3.22; III ♂ 1.26+0.56+0.80+1.04+0.44=4.10,



Figs. 1–4. *Cosmophasis lami* Berry, Beatty & Prószyński 1997 from Ishigaki Is., male NSMT-Ar 9807 (1, 3, 4) and female NSMT-Ar 9808 (2). 1–2, dorsal view; 3, thin scalelike hair; 4, broad scalelike hair. Scales=1.0 mm (1–2), 0.05 mm (3–4).

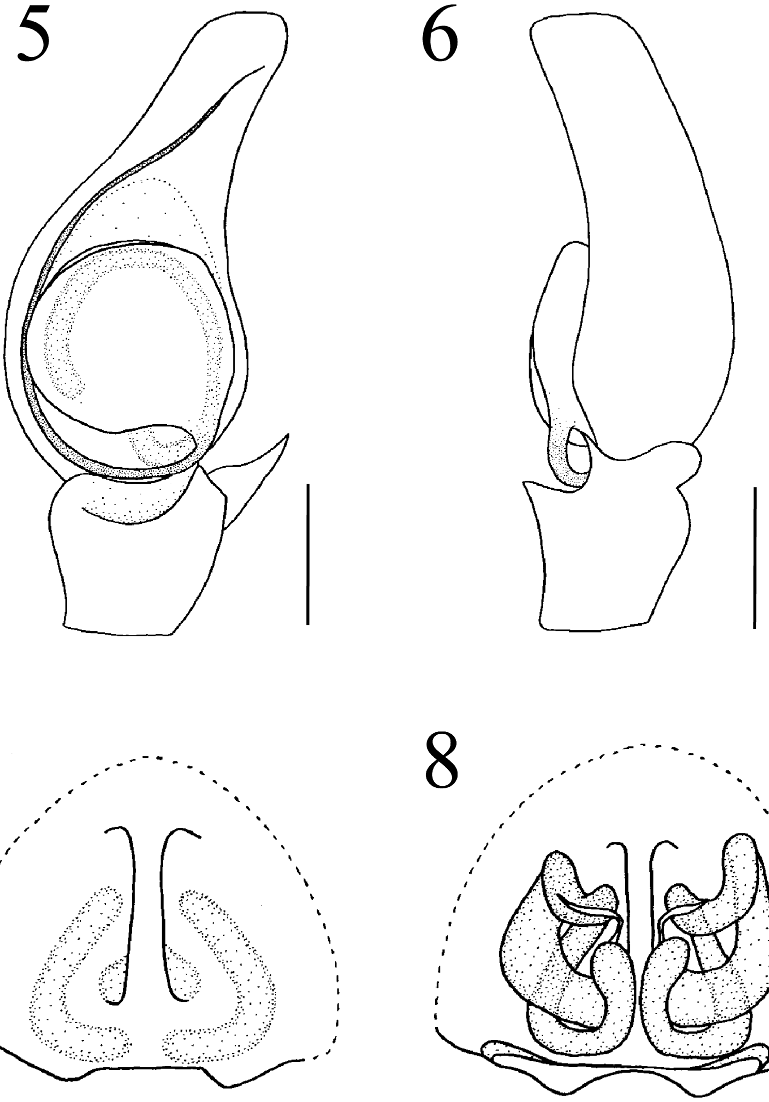
♀ 1.16+0.56+0.68+0.88+0.42=3.70; IV ♂ 1.44+0.58+1.06+1.28+0.48=4.84, ♀ 1.32+0.62+0.92+1.16+0.46=4.48. Spination of legs as shown in Table 1. Abdomen slender and elongated, length/width ♂ 2.07 (1.71–2.47), ♀ 1.93 (1.77–1.93).

Male palp (Figs. 5–6). Genital bulb circular, with seminal duct on peripheral surface. Embolus black, spiniform, originating at retrolateral corner of bulb, and half-encircling bulb medially. Tibia with ventral apophysis and bifurcate retrolateral apophysis: ventral part sharp; dorsal part spatulate. Cymbium rather elongated.

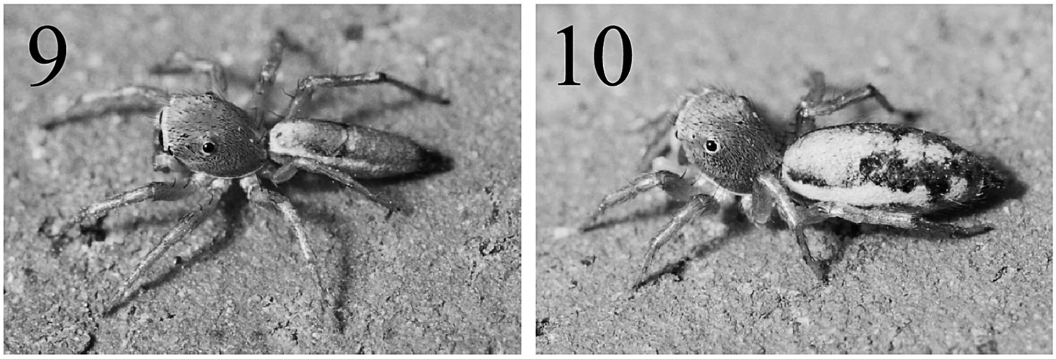
Female genitalia (Figs. 7–8). Epigynum with elongated copulatory openings divided by narrow median septum, and with a pair of shallow pockets at posterior edge. Internal canals long and winding, visible on epigynal surface as a pair of semicircular structures.

Coloration and markings. Male. Carapace: mostly orange-brown except dark brown eye field; covered with orange thin scalelike hairs (Fig. 3); bearing distinct longitudinal fovea and black radial lines; with black setae around eye field and on thorax. Surroundings of eyes black and with white thin scalelike hairs. Clypeus orange-brown. Chelicera, labium, maxilla and sternum bright brown with sparse black hairs. Abdomen yellowish white except black caudal end, with sparse black hairs, and dorsally covered with iridescent broad scalelike hairs (Fig. 4): mostly orange, partially black and forming a pair of black undulate stripes and obscure lateral line. Spinnerets dark brown. Legs entirely yellowish white. Palp: brown on genital bulb; bright brown and covered by translucent hairs on cymbium; yellowish white on femur, patella and tibia.

Female generally similar to male, but with grayish brown sternum and different abdominal markings made of broad scalelike hairs: dorsally mostly orange with a pair of ob-



Figs. 5–8. *Cosmophasis lami* Berry, Beatty & Prószyński 1997 from Ishigaki Is., NSMT-Ar 9807 (5–6) and NSMT-Ar 9808 (7–8). 5, male palp, ventral view; 6, same, retrolateral view; 7, epigynum; 8, female internal genitalia, dorsal view. Scales=0.2 mm.



Figs. 9–10. *Cosmophasis lami* Berry, Beatty & Prószyński 1997 from Ishigaki Is., NSMT-Ar 9807 (9) and NSMT-Ar 9808 (10). 9, male habitus; 10, female habitus.

Table 1. Spination of legs of *Cosmophasis lami* Berry, Beatty & Prószyński 1997 from Ishigaki Is., NSMT-Ar 9807 (male) and NSMT-Ar 9808 (female) (dorsal/ventral; none＝no spine, r＝retrolateral, p＝prolateral).

Leg		Femur	Patella	Tibia	Metatarsus
I	♂	1-1-1,1p,1r/none	none/none	1p-1p-1p/2-2-2	none/2-2
	♀	1-1-1,1p/none	none/none	0-1p-0/2-2-2	none/2-2
II	♂	1-1-1,1p,1r/none	none/none	1p,1r-1p-1p/1-2-2	none/2-2,1p
	♀	1-1-1,1p,1r/none	none/none	0-1p-0/1-1-2	none/2-2,1p
III	♂	1-1-1,1p,1r/none	1p,1r/none	1p,1r-1p,1r-1p,1r-0/1-0-0-2	2-1-2/1p-1-2,1p
	♀	1-1-1,1p,1r/none	1p,1r/none	1r-1p,1r-1p,1r-0/1-0-0-2	2-1-2/1p-1-2,1p
IV	♂	1-1-1,1p,1r/none	1p,1r/none	1p,1r-1p,1r-1p,1r-0/1-0-0-2	2-1-2/0-2-2,1p
	♀	1-1-1,1p,1r/none	1p,1r/none	1p,1r-1p,1r-1p,1r-0/1-0-0-2	2-2-2/0-1-2,1p

scure black stripes; laterally white (translucent scalelike hairs), with thin black stripe flanked by narrow orange lines.

The scalelike hairs easily lost in alcohol.

Distribution. Japan (new record; Ishigaki Island), Fiji, Keeling Islands, Seychelles, Singapore and Societe Islands. The occurrence in human habitats suggests human-assisted dispersal (Żabka & Waldock 2012).

Remarks. This species can be easily distinguished from other Japanese salticid species by the orange body and rather elongated abdomen with a pair of black stripes on dorsum. Also genital morphology is characteristic: male palp with circular genital bulb, long spiniform embolus and three tibial apophyses; epigynum with visible paired-semicircular internal canals and elongated copulatory openings.

No significant differences are found in both coloration and genital morphology between present specimens from Japan and populations of other regions (Berry et al. 1997; Saaristo 2002; Dierkens & Charlat 2011; Żabka & Waldock 2012).

Acknowledgements

I wish to express my heartfelt thanks to Dr. Akio Tanikawa, University of Tokyo, for revising the manuscript of this paper.

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Received January 10, 2013 / Accepted February 5, 2013